



Complete Summary

GUIDELINE TITLE

Bacterial keratitis.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Ophthalmology (AAO). Bacterial keratitis. San Francisco (CA): American Academy of Ophthalmology (AAO); 2000 Sep. 25 p. [50 references]

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Bacterial keratitis

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention
Treatment

CLINICAL SPECIALTY

Ophthalmology

INTENDED USERS

Health Plans
Physicians

GUIDELINE OBJECTIVE(S)

To minimize visual loss, relieve pain, eliminate the infectious agent, and minimize structural damage to the cornea by addressing the following goals:

- Recognize and reduce risk factors that predispose patients to bacterial infection of the cornea
- Establish the diagnosis of bacterial keratitis, differentiating it from other causes of keratitis
- Utilize appropriate diagnostic tests
- Deliver appropriate therapy
- Relieve pain
- Prevent complications, such as intraocular infection, cataract, perforation, and loss of vision
- Educate patients and their families about treatment and reduction of risk factors in the future

TARGET POPULATION

Individuals of all ages who present with symptoms and signs suggestive of bacterial keratitis

INTERVENTIONS AND PRACTICES CONSIDERED

- Prevention: Screening patients for predisposing factors; educating patients about the risks of extended-wear lenses and proper contact lens care; use of protective eyewear to prevent ocular trauma
- Diagnosis: Comprehensive eye evaluation, including detailed history; examination (e.g., slit-lamp biomicroscopy); cultures and smears; corneal biopsy
- Treatment: Topical eye drops, ointments, subconjunctival antibiotics; collagen shields or soft contact lenses soaked in antibiotics; systemic antibiotics; corticosteroid therapy

MAJOR OUTCOMES CONSIDERED

- Resolved corneal inflammation
- Reduced pain
- Resolved infection
- Restored corneal integrity and minimal scarring
- Restored visual function

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

In the process of revising the original document, a detailed literature search of MEDLINE for articles in the English language was conducted on the subject of bacterial keratitis for the years 1995 to April 2000.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ratings of strength of evidence:

I - Level I includes evidence obtained from at least one properly conducted, well-designed randomized controlled trial. It could include meta-analysis of randomized controlled trials.

II - Level II includes evidence obtained from the following:

- Well-designed controlled trials without randomization
- Well-designed cohort or case-control analytic studies, preferably from more than one center
- Multiple-time series with or without the intervention

III - Level III includes evidence obtained from one of the following:

- Descriptive studies
- Case reports
- Reports of expert committees/organization
- Expert opinion (e.g., Preferred Practice Pattern Panel consensus)

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The results of a literature search on the subject of bacterial keratitis were reviewed by the Cornea/External Disease Panel and used to prepare the recommendations, which they rated in two ways. The panel first rated each recommendation according to its importance to the care process. This "importance to the care process" rating represents care that the panel thought would improve the quality of the patient's care in a meaningful way. The panel also rated each recommendation on the strength of the evidence in the available literature to support the recommendation made.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Ratings of importance to care process

Level A, most important

Level B, moderately important

Level C, relevant, but not critical

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Guideline drafts are sent for review to national medical organizations such as the American Medical Association and the American Academy of Family Practice, to ophthalmic organizations, and to other groups depending on the subject. Comments made by these reviewers are considered by the guideline authors.

These guidelines were reviewed by Council and approved by the Board of Trustees of the American Academy of Ophthalmology (February, 2000). All Preferred Practice Patterns are reviewed by their parent panel annually or earlier if developments warrant.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Ratings of importance (A-C), and ratings of strength of evidence (I-III), are defined at the end of the Major Recommendations field.

Diagnosis

History

- Ocular symptoms [A: III]
- Review of prior ocular history [A: III]
- Review of other medical problems [A: III]
- Current ocular medications [A: III]
- Medication allergies [A: III]

Examination

- Visual acuity [A: III]
- General appearance of the patient [B: III]
- Facial examination [B: III]
- Eyelids and lid closure [A: III]
- Conjunctiva [A: III]
- Nasolacrimal apparatus [B: III]
- Corneal sensation [A: III]

Slit-lamp Biomicroscopy

- Eyelid margins [A: III]
- Conjunctiva [A: III]
- Sclera [A: III]
- Cornea [A: III]
- Anterior chamber [A: III]
- Anterior vitreous [A: III]

Diagnostic Tests: Cultures and Smears

- Cultures are indicated in cases with a corneal infiltrate that is large and extends to the middle to deep stroma, that is chronic in nature or unresponsive to broad spectrum antibiotic therapy, or that has clinical features suggestive of fungal, amoebic, or mycobacterial keratitis. [A: III]
- The hypopyon that occurs in eyes with bacterial keratitis is usually sterile, and aqueous or vitreous taps should not be performed unless there is a high suspicion of microbial endophthalmitis. [A: III]
- Prior to initiating antimicrobial therapy, cultures are indicated in sight-threatening or severe keratitis of suspected microbial origin. [A: III]

Management recommendations are described in the main body of the text of the original guideline document.

Follow-up Evaluation

- Frequency of re-evaluation of the patient with bacterial keratitis depends on the extent of disease, but severe cases (e.g., deep stromal involvement or larger than 2 mm with extensive suppuration) initially should be followed at least daily until clinical improvement or stabilization is documented. [A: III]

Provider

- The diagnosis and management of patients with bacterial keratitis require the clinical training and experience of an ophthalmologist because the disease has

the potential to cause visual loss or blindness and because the ophthalmologist is familiar with medical conditions associated with bacterial keratitis. [A: III]

Counseling/Referral

- Patients and care providers should be educated about the destructive nature of bacterial keratitis and the need for strict compliance with the therapeutic regimen. [A: III]
- The possibility of permanent visual loss and need for future visual rehabilitation should be discussed. [A: III]
- Patients who wear contact lenses should be educated about the increased risk of infection associated with contact lens wear, overnight wear, and the importance of adherence to techniques that promote contact lens hygiene. [A: III]
- Patients with significant visual impairment or blindness should be referred for vision rehabilitation if they are not candidates for surgical visual rehabilitation. [A: III]

Ratings of importance:

Level A, defined as most important

Level B, defined as moderately important

Level C, defined as relevant, but not critical

Ratings of strength of evidence:

I - Level I includes evidence obtained from at least one properly conducted, well-designed randomized controlled trial. It could include meta-analysis of randomized controlled trials.

II - Level II includes evidence obtained from the following:

- Well-designed controlled trials without randomization
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CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Effective therapy of bacterial keratitis eradicates the causative agent and minimizes structural damage to the cornea, thereby relieving pain, preserving vision and ameliorating the socioeconomic impact of the disease.

Subgroups Most Likely to Benefit:

Patients fall into four categories of risk factors that predispose them to bacterial keratitis:

- Exogenous factors: contact lens wearers; trauma; ocular surgery; loose sutures, medicamentosa; immunosuppression (topical and systemic); factitious disease, including anesthetic abuse.
- Ocular surface disease: misdirection of eyelashes; abnormalities of lid anatomy and function; tear film deficiencies, adjacent infection (conjunctivitis, blepharitis, canaliculitis, dacryocystitis).
- Corneal epithelial abnormalities: neurotrophic keratopathy; corneal epithelial edema, especially bullous keratopathy; disorders predisposing to recurrent erosion of the cornea; viral keratitis.
- Systemic diseases: diabetes mellitus; debilitating illness, especially malnourishment and/or respirator dependence; connective tissue disease; substance abuse; dermatological/mucus membrane disorders (Stevens Johnson syndrome, ocular cicatricial pemphigoid); immunocompromised status; atopic dermatitis/blepharoconjunctivitis; gonococcal infection with conjunctivitis; vitamin A deficiency.

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Preferred Practice Patterns provide guidance for the pattern of practice, not for the care of a particular individual. While they should generally meet the needs of most patients, they cannot possibly best meet the needs of all patients. Depending on a host of medical and social variables, it is anticipated that it will be necessary to approach some patients needs in different ways. The ultimate judgment regarding the propriety of the care of a particular patient must be made

by the physician in light of all the circumstances presented by the patient. Adherence to these Preferred Practice Patterns will certainly not ensure a successful outcome in every situation. These guidelines should not be deemed inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the best results.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American Academy of Ophthalmology (AAO). Bacterial keratitis. San Francisco (CA): American Academy of Ophthalmology (AAO); 2000 Sep. 25 p. [50 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 Sep

GUIDELINE DEVELOPER(S)

American Academy of Ophthalmology - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Ophthalmology (AAO)
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GUIDELINE COMMITTEE

Cornea/External Disease Panel; Preferred Practice Patterns Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. It is an update of a previously issued version (Bacterial keratitis. San Francisco [CA]: AAO, 1995 Sep).

This document is valid for 5 years from the date released unless superseded by a revision. All Preferred Practice Patterns are reviewed by their parent panel annually or earlier if developments warrant.

GUIDELINE AVAILABILITY

Electronic copies: Available from the [American Academy of Ophthalmology \(AAO\) Web site](#).

Print copies: Available from American Academy of Ophthalmology, P.O. Box 7424, San Francisco, CA 94120-7424; telephone, (415) 561-8540.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on December 1, 1998. The information was verified by the guideline developer on January 11, 1999. The summary was

updated by ECRI on January 29, 2001. The updated information was verified by the guideline developer on March 12, 2001.

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